	Application No.	Applicant(s)	
Notice of Allowability	09/762,631	WANG ET AL.	
	Examiner	Art Unit	
	Yon Couso	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *9/29/04*.

2. ☒ The allowed claim(s) is/are *12-24*.

3. ☒ The drawings filed on *12 February 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the

           International Bureau (PCT Rule 17.2(a)).

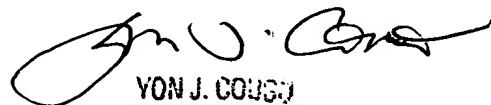   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

     (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

     (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

       Paper No./Mail Date _____.

     Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date *9/29/04*

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

YON J. COUSO
PRIMARY EXAMINER

1.   This communication is in response to the amendment filed September 29, 2004.

2.   Claims 12-24 are allowed.

3.   The following is an examiner's statement of reasons for allowance:

The prior art fails to teach or suggest a method and an apparatus for encoding a digital still image to produce a compressed bit stream, said method comprising the steps of: decomposing and ordering the digital still image into a hierarchy of multi-resolution images, wherein each multi-resolution image comprises a set of one or more transform coefficients, wherein each transform coefficient has a magnitude and wherein each transform coefficient represents a pixel of said digital still image; initializing a list of insignificant blocks, a temporary list of insignificant blocks and a list of significant pixels as empty sets, wherein after initialization and during processing the list of insignificant blocks is used to store one or more blocks of transform coefficients for which all transform coefficients are insignificant for a particular threshold value or have not yet been evaluated for significance, the temporary list of insignificant blocks is used to store one or more blocks of transform coefficients for which all transform coefficients have been evaluated to be insignificant for a particular threshold value and the list of significant pixels comprises one or more transform coefficients which have been evaluated to be significant for a particular threshold value; entering each multi-resolution image as a block of transform coefficients into the list of insignificant blocks in an arbitrary sequence; determining an initial threshold value based on the transform coefficient having the largest magnitude; generating a significance map related to a selected threshold value and encoding said significance map using a quadtree

representation, wherein said significant map is determined by the evaluation of the significance of the blocks of transform coefficients within the list of insignificant blocks in relation to this selected threshold value, wherein the sequence of evaluation is performed according to the sequence in which the blocks of transform coefficients were entered into the list of insignificant blocks and wherein a transform coefficient greater than or equal to the selected threshold value is significant in relation to this selected threshold value; and generating the compressed bit stream, wherein said bit stream contains a bit stream header comprising information relating to method of generation of said compressed bit stream.

Prior art also fail to teach or suggest a method for decoding a compressed bit stream to produce a digital still image, said method comprising the steps of: decoding a bit stream header associated with the compressed bit stream, wherein the bit stream header comprises information relating to the method of generation of said compressed bit stream; generating an initial list of insignificant blocks based on the decoded bit stream header; initializing an empty list of significant pixels; initializing a wavelet coefficient array based on the decoded bit stream header; generating a current threshold value based on the decoded bit stream header; decoding a quad-tree encoded significance map from the list of insignificant blocks based on the current threshold value; modifying the list of significant pixels and the list of insignificant blocks of pixels according to said decoding; decoding refinement bits of wavelet coefficients wherein the coefficients of all pixels moved to the list of significant pixels are updated based on said decoded refinement bits; reducing the current threshold and repeating

the above steps to obtain a further significance map using the reduced threshold value

until all significance maps in the compressed bit stream have been generated;

constructing said wavelet coefficient array based on said significance maps; and

reconstructing the digital still image from said wavelet coefficient array using an inverse
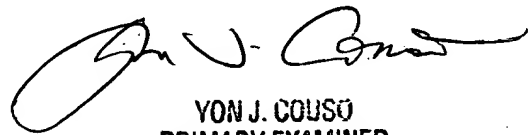
wavelet transform.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

4.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Yon Couso whose telephone number is (703) 305-4779.
The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.
        If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number
for the organization where this application or proceeding is assigned is 703-872-9306.
        Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

YJC
February 1, 2005

YON J. COUSO
PRIMARY EXAMINER